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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/591,772

09/06/2006

Etienne Chapelain

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EXAMINER

DIAZ, THOMAS C

ART UNIT

PAPER NUMBER

4171

MAIL DATE

DELIVERY MODE

07/09/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/591,772	Applicant(s) CHAPELAIN ET AL.	
	Examiner Thomas Diaz	Art Unit 4171	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>09/06/2006</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

The specification should include headings for the appropriate sections as described in CFR 37 § 1.77.

Appropriate correction is required.

Claim Objections

2. Claims 6-7, 9 are objected to because of the following informalities:

The examiner recommends adding a coma after the terms "...engages the spring element" for clarity in claim 6.

The term "park" in claim 7 and 9 appears to be a misspelling. Does the applicant mean "part"?

Examiner recommends reformatting claim 9 by separating each claimed structure element by a line indentation as described C.F.R. § 1.75.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 4171

4. Claims 6-7, 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant recites the term "spring plate". There is no antecedent basis for this term. Is there another type of plate besides the anti-backlash gears? Omitting the word spring could fix this if the applicant is referring to the anti-backlash gears. For purpose of examination the examiner takes the position the applicant is referring to the anti-backlash gears. This error is also done in claim 9.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Hiramitsu et al. (USP 47964482).

Applicant claims the following structure corresponding to Hiramitsu et al.'s invention.

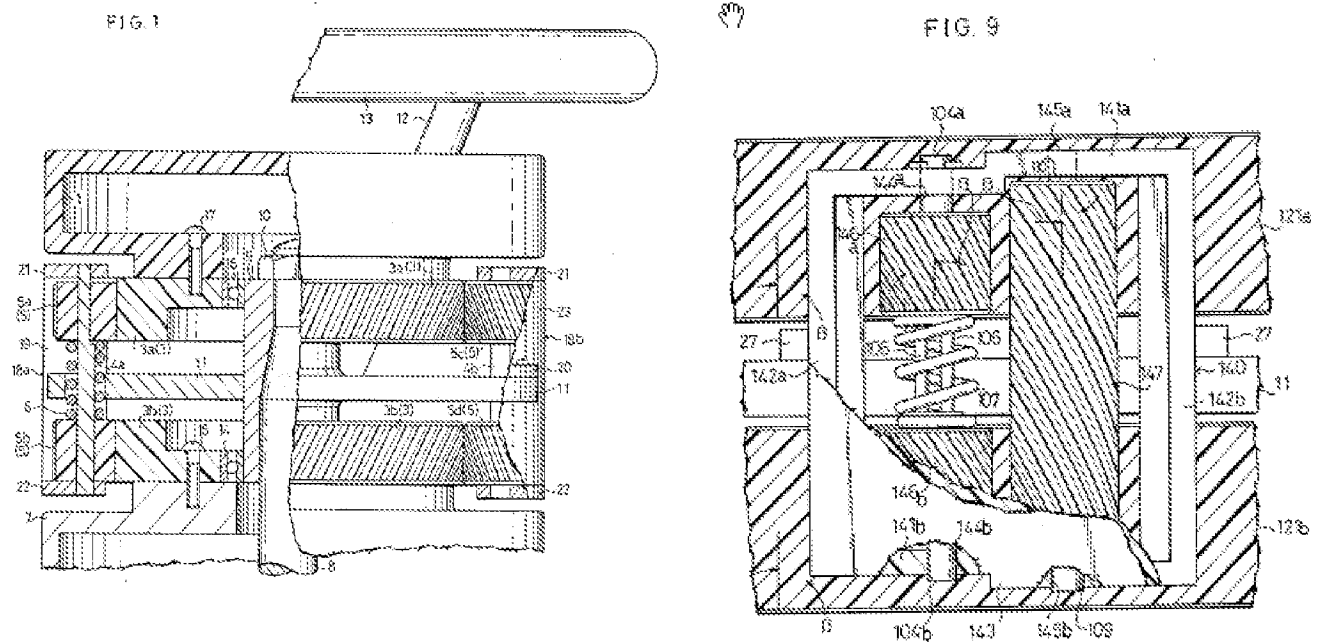
The reference numerals and explanations within the parenthesis refer to the prior art.

Regarding claim 1,

Applicant claims a steering wheel (fig.1; Invention directed to a steering wheel, Title) having:

- A first gear element (fig.9, 121a),

- A second gear element (fig.9, 147),
- An anti-backlash gear which is mounted on one of first or second gear elements (fig.9, 146a; Prior art discusses motivation of suppressing backlash in col.2, lines 38-42, and col.13, lines 54-63; Examiner takes the position that this gear is "mounted on" gear 121a although it's not directly on top of it),
- The teeth of the anti-backlash gear configured so as to align substantially with gear on which it's mounted (fig.9, 146a; This is inherent since the gear teeth have to be substantially aligned in order for the device to function.)
- The anti-backlash gear being rotatably biased relative to the gear on which it is mounted towards a position where the teeth of the anti-backlash gear are displaced from the corresponding teeth of the gear element. (fig.9, 146a and 107; the spring biases gear 146a such that the teeth are displaced from the gear on which it is mounted, also explained in col.12, lines 10-21).



Above figures- Hiramitsu et al. steering assembly.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

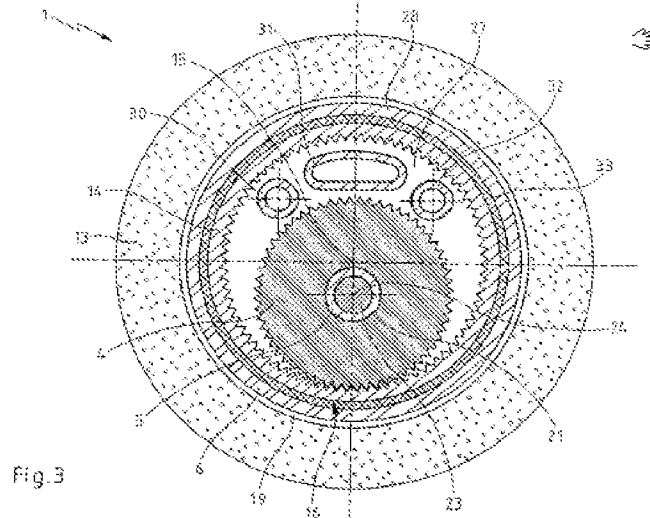
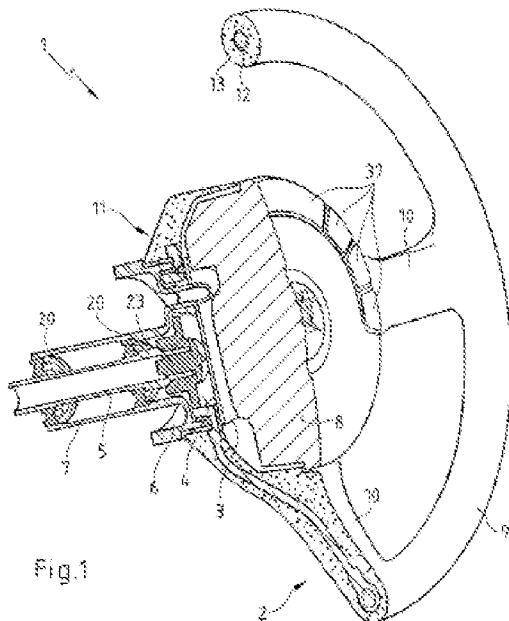
8. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laurent et al. (EP1199243A) in view of Wegert (USP 1564160)

Laurent et al. teaches the following:

Regarding claims 1-3,

Laurent et al. teaches a steering wheel (fig.1, 9) having a first gear element (fig.3, 4; pinion gear) and a second gear element (fig.3, 14; ring gear).

Laurent et al. fails to teach the use of an anti-backlash gear and all the specifics related to the anti-backlash gear claimed through claims 1,2,4-8.



Above figures- Laurent et al. steering assembly.

Wegert teaches the following:

Regarding claim 1,

Wegert teaches a silent gear (fig.1) or backlash eliminating gear for preventing noise in the motor of an automobile (col.1, Lines 8-12), having two backlash gears (fig.2, 15 and 18) mounted on a gear element (fig.2, 10). The backlash teeth are substantially aligned with the gear element (seen in fig.1) and they are rotatably biased such that their teeth are displaced from the teeth of the gear element (also seen in fig.1).

Regarding claim 2,

Wegert teaches the anti-backlash gears are mounted on said gear element (seen in fig.1).

It is clear that Laurent et al. fails to teach anti-backlash gearing and that Wegert fails to teach the specifics of the apertures and washer used in the gearing.

According to the teachings described above, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the anti-backlash gearing taught by Wegert with the gear train taught by Laurent et al. for the purpose of reducing noise (i.e. backlash) in the gear train. It would be obvious to place the anti-backlash gearing of Wegert on top of the pinion gear taught by Laurent et al. in order to reduce backlash between the pinion and the ring gear. As seen in the references, and proven by their dates, it is well-known to eliminate backlash in gear trains.

The limitations of claim 3 are met by the combination of the references as described above.

Regarding claim 3,

The applicant claims the backlash gearing is mounted on a ring gear. The combination made above of Wegert and Laurent et al. teaches the two anti-backlash gears being mounted on the ring gear and the pinion gear provided by Laurent et al. Since the backlash gearing is directly mounted on the pinion gear which engages the ring gear then it is considered to be mounted on the ring gear as well.

9. Claims 4-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laurent et al. (EP1199243A) in view of Wegert (USP 1564160) as applied to claims 1-3 above and further in view of Maccoul (USP 2092888) and Erickson (USP 1486423).

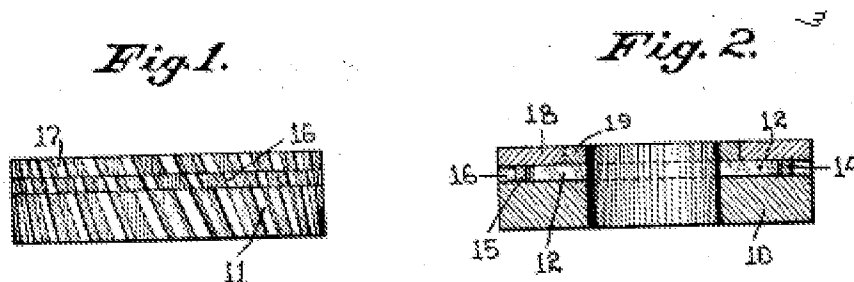
Regarding claim 4,

Wegert is silent towards the gear element being a pinion gear.

Regarding claims 5-8,

Wegert teaches the anti-backlash gears being in form of a plate (seen in fig.1) but fails to teach that they both have apertures.

Wegert also fails to teach the shape of the claimed shape of the spring elements, shape of the apertures and a washer securing the gears together.



Above figures- Wegert gearing.

Maccoul teaches the following:

Regarding claim 5,

Maccoul teaches a backlash eliminator gearing (fig.1 and fig.2) for eliminating backlash in gear trains (col.1, lines 1-9). The gearing has two backlash gears in the form of plates (seen in fig.1) and each plate having coaligned apertures (fig.1, 9) which hold spring elements (fig.1, 11).

Regarding claim 6, as best understood,

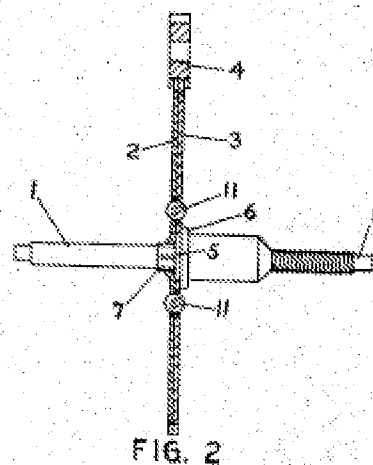
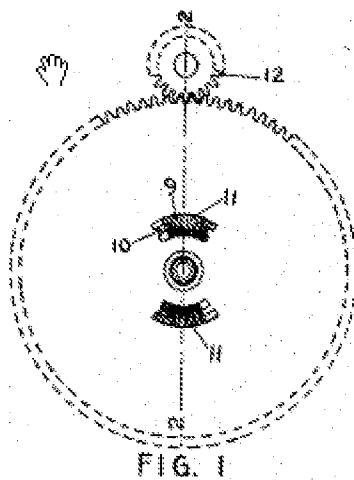
Maccoul teaches “C” shaped spring elements (fig.1, 11), each spring element passing through the apertures and engaging part of the apertures in the plates.

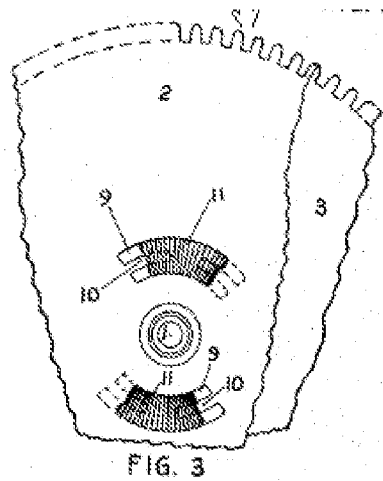
Regarding claim 7,

Maccoul teaches the apertures being outwardly directed, bifurcated and with two arcuate slots (fig.3, 9).

Regarding claim 8,

Maccoul is silent towards the anti-backlash gears being held in position by a washer. However, Maccoul teaches a shoulder portion (fig.2, 6) which holds the plates.



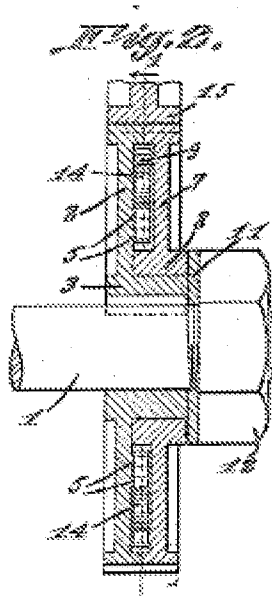


Above figures- Maccoul gearing.

Erickson teaches:

Regarding claim 8,

Erickson teaches a washer (fig.2,11) holding a set of anti-backlash gears together.



Above figure- Erickson gearing.

Therefore, it would be obvious to modify the combination of Wegert and Laurent et al. with the teachings of Maccoul in order to improved backlash elimination because of the aperture and spring arrangement. In addition, it would be obvious to substitute the shoulder taught by Maccoul with a washer taught by Erickson in order to hold the gearing together. It is noted that the shoulder provides the same predictable result as the washer and thus the parts are interchangeable.

Regarding claim 9, claim 9 is merely the combination of the limitations recited in claims 1,2, 4-8. As a result, the rejection is adequately set forth in paragraph 8 and 9, above, and is incorporated herein by reference.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. This prior art contains additional backlash gearing and steering systems with backlash gearing.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas Diaz whose telephone number is (571)270-5461. The examiner can normally be reached on Monday-Thursday 7:30am-6:00pm, Friday's off..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on (571)272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit 4171

Thomas Diaz
Examiner
Art Unit 4171

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